

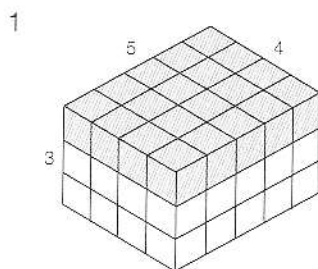
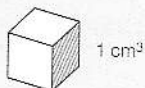
60 Volume



Measurement

A Finding a Formula

The volume of a solid is the amount of 3 dimensional space the solid occupies. This amount of space is usually measured in cubes e.g. cubic centimetres (cm^3).



a) How many cubes do you count on the top layer of this block?

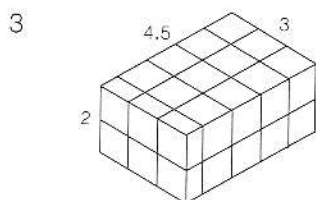
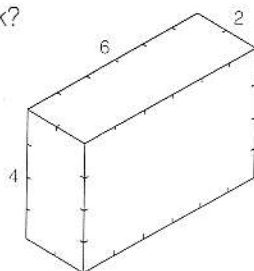
b) How many layers are there?

c) Complete: 'The volume is cubes'.

d) Do you agree with this statement?

'The volume is $4 \times 5 \times 3$ cubes'.

2 How many cubes are in this block?



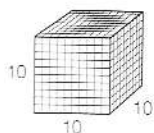
a) By adding half cubes together, count how many cubes there are in the top layer.

b) The volume of this block is cubes.

c) Do you agree with this statement?

'The volume is $4.5 \times 3 \times 2$ cubes'.

4 The diagram shows a picture of 1 cubic centimetre which is cut into cubic millimetres.



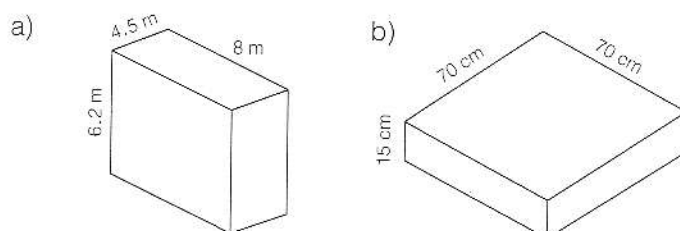
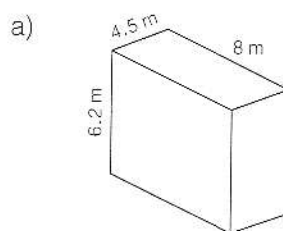
How many mm^3 are there in 1 cm^3 ?

$1 \text{ cm}^3 = \dots \dots \dots \text{mm}^3$.

B Using a Formula and a Calculator

Formula: Volume of a cuboid = length \times width \times height

1 Calculate the volumes of these cuboids.

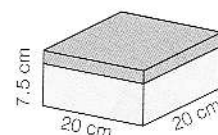


V = m^3 V = cm^3

2 The gym at Black Forest Area School is 20 m wide, 35 m long and 6 m high. Calculate the volume of the gym. Remember the unit.

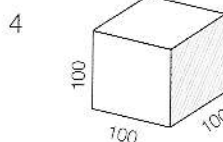
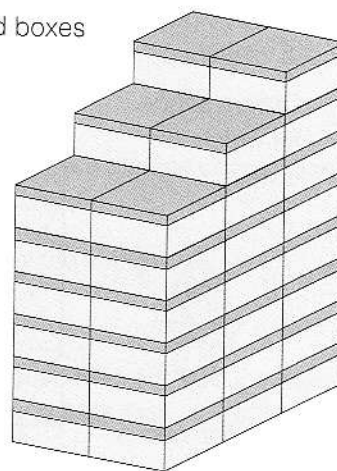
3a) A cardboard box has a square base as shown and is 7.5 cm high.

Calculate the volume of the box.



b) A pile of these cardboard boxes are stacked as shown.

Calculate the volume of the stack in cm^3 .



How many cm^3 are there in 1 m^3 ?

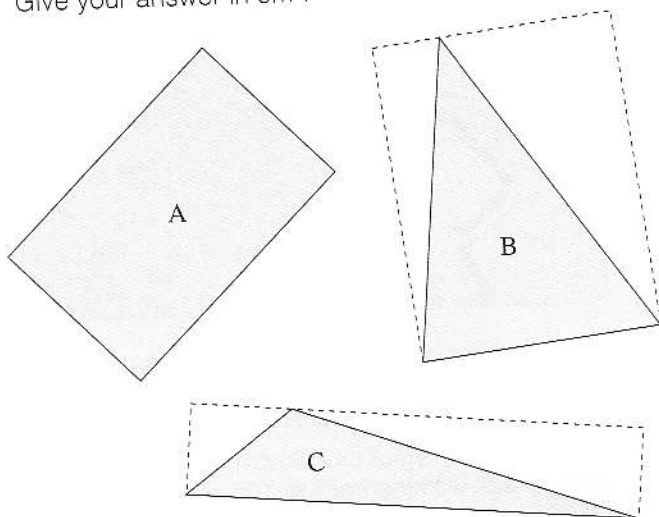


Measurement

Perimeter, Area, Volume 61

A Take Measurements

- 1 Take measurements and find the areas of these shapes. Give your answer in cm^2 .

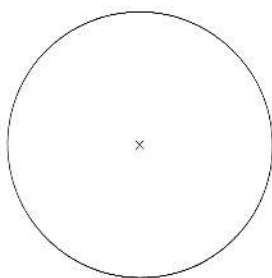


- a) Area rectangle A =
b) Area triangle B =
c) Area triangle C =

- 2 How many m^2 in 1 km^2 ?

$1 \text{ km}^2 = \dots\dots\dots \text{m}^2$

3



Take measurements and calculate the circumference of this circle.

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- 4 Look in the pantry at home and find a cardboard box with, for instance, cereal or cocoa or tea bags in it.

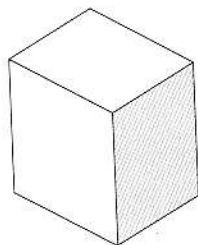
- a) Take measurements and write them on this diagram.

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- b) Calculate the volume of the box.

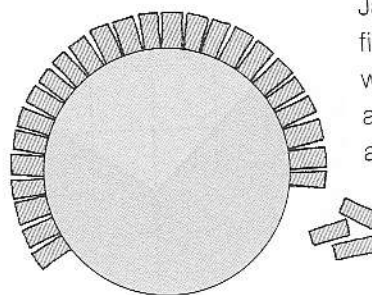
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B The Fish Pond

1



Jake is building a circular fish pond in the garden with an edge of bricks around it. The pond has a diameter of 185 cm.

The bricks are 12 cm wide and 24 cm long.

- a) Calculate the circumference of the pond.

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- b) How many bricks does Jake need along the edge?

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- 2 Jake stacked 60 bricks. When he was finished the stack was a perfect cuboid.

- a) Give an example of how Jake could have stacked the bricks.

Number of bricks per layer

Number of layers

- b) Draw one layer of bricks as seen from above.

- c) Are there other ways of stacking these 60 bricks into a cuboid? Explain.

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